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American Iris Society

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MISSOURI BOTANICAL
GARDEN LIBRARY

American Iris Society

June, 1920

THE CULTURE OF IRISES IN THE UNITED STATES

I

EDITED BY THE SECRETARY

R. S. STURTEVANT

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INTRODUCTION

Altho this, our First Bulletin is primarily devoted to the culture of Irises it seems desirable to include a short note as to just what varieties of the Bearded Irises are to be recommended to those who have the enthusiasm but not the pocket-book for a collection of the finest and newest introductions. (Incidentally I might say that all the obtainable species are inexpensive.) Such a list should be small—there will be many conspicuous omissions—but our chief object is to include a wide range of color and time of bloom accompanied by a small cash outlay. All these varieties may be obtained from some nursery at $ .50 a root, most of them will cost only $ .25 each or even less if purchased in quantity. We make little attempt at alluring descriptions, but each, in its color is worthy.

Earliest of all come the Dwarf Pumila Hybrids. The nomenclature is most confused but I might mention Schneecuppe, lutescens Statellae, and Stewart or Penelope in yellow tints or azurea, Socrates, Standard, and Berlioz in lavender and purples, tho to tell the truth the plant in bloom is the only safe thing to select. The Intermediate Flowering varieties follow closely; the big white Ingeborg, creamy yellow Empress, pearl tinted Florentina, claret Kochii (there are many synonyms) and two toned Amas and Kharput, the first a blue-purple, the last an even richer red-purple. These are easily selected but with the late Flowering Hybrids decision is difficult.

Let us start with the whites, Mrs. Horace Darwin and Innocenza, then add Ma Mie and Jeanne d'Arc with their blue-lavender edgings and Victorine or Rhein Nixe with heavily purpled falls. There are Flavescens, Aurea, and Sherwin Wright in deepening yellows, Iris King, Lorelei, Mithras, Fro. or Gagus with yellow standards and variously colored falls. Niebelungen is of duller hues, Dr. Bernice of a warm velvety bronze and the pinker toned Arnols and Jacquesiana lead us on to the iris "pinks." Good old Queen of May, Mrs. Alan Gray, Her Majesty, Lohengrin, Rose Unique, and Wyomissing might be specified and even Isoline may be included in the price. From these rose and lilac shades we pass on to the lavender selfs; few irises can compare with the true Pallida Dalmatica; Albert Victor and Juniata are darker, Viola or Mandralescae give a little earlier bloom, but all are one corored as is the claret hued Caprice. A veined lavender bi-color like Albatross is not nearly as effective as the velvety Perfection or Othello; Oriflamme has size, Tamerlane a dusky richness and if you want something a little out of the ordinary try Queen Alexandra, Parc de Neuilly, Hebe, or Dawn.

Of these, if you study your catalogs to advantage, you may take your pick, you may have size and beauty, such colors as may suit your need and as your collection grows, very few will be discarded. And that reminds me, an iris garden soon gets crowded, will you not share your surplus with us, contribute to our trial and exhibition plantings thruout the country?

Revenons à nos moutons.

This, the first Bulletin of the American Iris Society embodies the report of our Committee on Culture of which William A. Peterson is Chairman. The experiences of our members should give the best possi-

ble procedure to be followed in different sections of the country under varying climatic and soil conditions but, inasmuchas certain species or sub-sections of the Genus Iris are not commonly grown, it has seemed advisable to quote from a variety of sources, now a paragraph from a letter, now a published note or even a conversation. Except for notes and articles in the garden magazines Iris literature deals almost entirely with the genus from a botanical point of view. The large monograph "The Genus Iris" by W. R. Dykes, the recently elected secretary of the Royal Horticultural Society has superseded the "Handbook of the Irideae" published in 1892 by J. G. Baker and "The Book of the Iris" (1903) by R. Irwin Lynch. Both these last and "Irises" by W. R. Dykes (the only small popular treatment of the subject) are at present out of print. I should also mention "Bulbous Irises" (1892) by Prof. Michael Foster the "father" of the modern iris and "Les Iris dans les Jardins" by Correvon and Massé.

For a family generally considered of such easy culture, there are a surprising number of methods of treatment recommended and rarely has it been necessary to cut from the reports submitted. With the exception of the southeast, the different sections of the country are well represented by short articles, the odds and ends are roughly grouped according to the botanical classification and the index will lead one to special notes. Each member will find recommendations at variance with his experience, partly because so many varieties are extremely easy to grow and partly because of the great differences in climate and soil. There are also conspicuous omissions, particularly in regard to the common bulbous irises which we have previously imported from Holland very cheaply and also, as regards the comparative hardiness of some of the newest introductions among the Bearded Irises. A few requirements in the Culture of Irises stand out preeminently; sunshine for them all, good drainage and often lime for the Bearded or Pogoniris, moisture for the Beardless or Apogons, and lime for the Oncocyclus tribe.

Each member of the committee was requested to answer the following questions; soil, drainage, preparation of the ground, fertilizer, time of planting and spacing, and care including irrigation and winter protection.

You will note that there is no attempt to treat the question of disease. It is a question that merits expert study. A committee of pathologists and entomologists has been formed for this purpose and as the usual methods of prevention have not, in some cases, proved wholly satisfactory I shall merely outline the few things to beware of. The two leaf-spot diseases that are sometimes bothersome in England are not commonly known in this country, but both the iris rot and the borer may be found. A deficiency of lime conduces to leaf spot, a wet season or poor drainage and lack of sun, to rot. This last with its offensive odor is most unpleasant; prematurely yellowing leaves at flowering time may be found to be rotting at the base, sometimes the stalks are affected and as the disease is bacterial the only remedy is a careful removing, sometimes cutting out of the diseased parts, which should be burned. If the plant is not valuable it may be easier to burn it all but if valuable, I leave the clean cut exposed to the sunlight and dust it with sulphur, or an acid, as acids are fatal to the bacteria which thrive in lime and alkaloids. The borer has quite a different character and like a cut-worm or a fruit tree borer he must be tracked to his lair. About flowering time you may find a slimy leaf. That is his first sign of occupancy and he is easily pinched or removed; as the season advances he eats his way down into the rhizome and if not discovered may completely demolish the center of the clump before he works his way into

the ground and forms a brown chrysalis. As a moth he is a small brown night-flyer, but as a grub he is whitish and, well-fed, becomes a full inch and a half in length. These two troubles, rot and borer, should be kept in mind, for vigilance in either case may nip the trouble in the bud and it is only neglect in the beginning that will cause serious trouble. You may find both at once, you may find natural decay in old rhizomes, but you can tell the presence of rot by the smell, the borer by his slimy trail. Watchful waiting is unwise. Be vigilant and if conditions are at all good your troubles will be slight, but remember that the rot is infectious, burn it carefully, if necessary move the plant, after cleaning, to new ground and don't scatter the bacteria carelessly about. After careful experiments we shall be able to really advise the few unfortunates whose irises have become infected.

Iris Culture for the Mountains and Plains Region

D. M. Andrews, Boulder, Colorado.

Nearly all the irises grown in the Rocky Mountain States are included in the two groups, Pogoniris and Apogon, mostly the former. There is but one native species in this region, Iris missouriensis, which belongs to the Apogon group, and this ranges eastward and northward from Colorado, and ascends into the mountains to high open valleys at an altitude of about 8,500 feet above sea level. It is known in deep blue and pure white, but the common form is a clear lavender-blue with more or less veining. Its flowering season is May, and the blossoms seem large for the slender foliage and foot-high stems.

The tall and dwarf bearded iris of the Pogoniris groups grow so easily and thrive so well under a great variety of conditions that it seems idle to say a great deal about their culture. They can be planted at any season when the ground is not frozen, the least favorable time being the period of active growth approaching and following the blooming season. Where irrigation is available a root growth may be induced at any time when the soil is warm enough, and this seems to be the main requisite for successful transplanting. The most favorable time for planting, provided the ground is moist enough to work well, is from the end of August till late in the fall. The roots should be planted firmly, and unless the earth is quite moist, planting should be followed soon by irrigation. The two advantages of fall planting are; first, the dormant condition of the plants; and second, the facility of securing the formation of new fibrous roots at the season of the year when the ground is warmer than the air. This reestablishes the plant with the least possible check to its growth and consequent interruption of the blooming function. Even with very late planting, the roots show activity at all intervals during the winter when the ground is not frozen, with material advantage over spring planting.

The ideal soil for Bearded Iris is a mellow, sandy loam, well drained and of moderate fertility. Occasional rotting of rhizomes, most frequent in pallida varieties, seem to be associated with an excess of moisture; though probably the direct cause is a fungous infection which becomes

active under such a condition. Ridging of rows or other mechanical methods of drainage are not usually necessary in this climate. While Bearded Iris will thrive under a great variety of soil conditions, the particular advantage of a sandy loam of good mechanical texture is most apparent to the nursery man who grows plants for sale. Any one who has tried to shake the soil from a 4-year-old iris clump will know just what I mean. I am sure the customer likes to receive plants which show the vigor invariably associated with a great abundance of fibrous roots, a development difficult to obtain in an adhesive soil.

For nursery culture where irrigation by ditches is practiced, the rows should be arranged so the grade will be about six to fifteen inches per hundred feet of rows; a much heavier grade will cause washing of the soil. The rows may be 30 or 42 inches apart and the plants six to eight inches apart in the row, or an average of about two square feet per plant. This is about the right spacing in the border for vigorous varieties. These rows under good average conditions in this climate will not become too crowded for good plants or good blooms for three to five years, or even longer. Fairly good flowers in limited number may be expected the first season, both from fall and early planting; provided the stock is of good vigor, and not weakened from previous over-crowding.

Irises respond readily to good tillage, and the annual growth of foliage and flowers doubtless demands a considerable food supply. My recipe for a complete fertilizer for Iris is as follows: cultivate the soil thoroughly and frequently; not very deep, but have a mellow top soil at all times. When in doubt what to do—cultivate. In a semi-arid climate, where the fertility is not leached out by excessive rainfall, where there is no acidity to contend with, where the natural humus does not disintegrate rapidly, and where rock elements are near enough at hand to indicate a sufficiency of mineral food; it is doubtful if organic or chemical fertilizers will be needed for irises for a long time to come. Too much organic fertility will result in a soft, rank growth with little tendency to bloom.

The varieties of Bearded Iris will succeed with a small annual rainfall, provided this comes at the right season. The rainfall of Colorado varies in different localities from 14 inches to 24 inches or more, and this with care in conservation by dust mulch will give successful results, except that the last half of the blooming season is apt to be impaired by drought. Irrigation should be employed early enough to prevent any check whatever to growth. Sufficient water should be applied to render plant food soluble and available, but no more. The need for irrigation after the blooming season will depend upon the retentiveness of the soil and other conditions readily discernable. A gradual dryng off during the ripening process is the natural course of events, but this should not be too extreme.

No winter protection is required for established plants. When planting is done very late in the fall, it is customary to turn a light furrow over the row after planting. This may be raked off in the spring with the first indication of growth.

The altitude limitation of successful Iris culture corresponds in a way to that of latitude, and depends upon the length of the growing season, rather than severity of climate or degree of cold. Obviously the pumila and germanica varieties will succeed farther north and at a higher altitude than the later pallidas and plicatas. The earlier varieties will doubtless succeed up to 9,000 feet above sea level, and the later varieties will up to 7,000 or 8,000 feet. Here the natural rainfall would be sufficient for requirements.

The Apogon group includes, besides the Japanese Iris, several species of simple requirements of soil and culture.

In a semi-arid climate the Japanese Iris demands certain cultural conditions which are not usually natural and must therefore be produced artificially. My greatest success with Japanese Iris was on rather low bottom-land, where water could be reached in the underlying gravel at a depth of two feet below the surface. The soil was a fine sandy loam, very mellow and with sufficient humus to give it a spongy texture. I had flower stems four and a half feet tall, and truly wonderful blooms. Success was due, first to a uniform and ample supply of moisture, always in reach of the shallow root system of this plant; second, a soil texture favorable to a wide lateral extension of the feeding roots; third, a suitable quantity and quality of available plant food. I am not sure how much fertilization of soil is advisable, but well established plants can doubtless make good use of liberal applications of well rotted cow manure. This will keep up the supply of humus and improve soil texture. Unless prepared to supply moisture regularly during the growing season, one had better devote his space to other use.

Irises in Minnesota

W. F. Christman.

July and August are probably the best months of the year for planting as this gives the plants considerable time to accumulate sufficient root growth to carry them through the winter nicely and also to insure bloom, in most cases, the following spring. September planting also is productive of good results in this section and further south would doubtless prove an ideal time. †

Irises seem to thrive well in land that is not too rich, though thoroughly prepared as for garden purposes, but I have, at the present time, a number growing in rich soil that seem to be in a thriving condition. Good drainage should be secured, and a south slope is preferable, but if obliged to plant on land that does not possess good natural drainage, ridging the surface of the ground would be beneficial. As with other bulbous rooted plants there is always more danger of heaving from frost in a heavy than in a lighter soil.

No specific set of rules will cover all conditions as to distance between plants. Twelve to fifteen inches apart in double rows, with ample room to use a horse cultivator between these double rows, permits of working between the plants by hand, whereas, if hand cultivation is resorted to, it might be policy to plant in single rows. The matter is one that should be planned in accordance with future requirements..

In fairly fertile soil no application of fertilizer is necessary, but superphosphate of lime* is splendid, and tends to prevent and cure iris rot. Manure that comes in direct contact with the rhizome is injurious. I have known of many cases that have resulted in the loss of the plants. Bone meal could be used with less danger and perhaps better results. There is no flower that will stand abuse to a greater extent than the iris and still exist. The peony is in about an equal class, although irises will endure conditions that would be fatal to the peony. I have in mind the extreme heat of the arid regions. Personally, I like to give my irises the same attention that I do my other flowers and feel that

liberal cultivation will be reflected in the results obtained. Irises should be mulched in this section the first winter after planting, but after they have attained some growth the tops seem to answer this purpose very satisfactorily; the mulching, however, should not be resorted to until after the ground has frozen. Straw, gladiolus tops, or other coarse material can be used. If plants are not protected the first winter, a thaw followed by severe weather is apt to force the plants completely out of the ground; and though if there is a sufficient fall of snow in early fall that does not disappear until in March, they will be found in good condition. As a rule, mulching is recommended.

How soon after planting may bloom be expected? This depends a great deal upon the size of the division planted but also upon the variety. I am familiar with a planting where the divisions were made as small as possible for the purpose of rapid propagation and nearly every one bloomed the following spring. As with the peonies, I find some varieties are very slow to become established; some of the very finest irises must have sufficient time to get fully rooted before results can be expected while others seem to fairly bristle with anxiety to produce bloom.

* May be obtained from Lester Chemical Works of Newark, N. J., with connections at Detroit and St. Louis.

† W. E. Fryer, Mantorville, Minn., reports excellent results from October and even November planting.

(1) From a letter from W. F. Christman. Ed.

Irises on the Pacific Coast

Jennett Dean, Moneta, Cal.

It is somewhat difficult to give specific directions where conditions vary so greatly within a few miles, but the irises thrive well in heavy soil, "adobe," and also in lighter soils, and even in sandy soil with the proper treatment. Ours is a rich heavy "mesa," but requires more or less irrigation, and we think that some of the variegatas, neglectas, and pallidas that bloom late would make taller foliage and flower stems in a little lighter and moister soil.

The Bearded Irises should not be planted deeply—not over the depth of the rhizome tho possibly a little deeper in sandy soil—and, in a climate such as Southern California transplanting may be done at any season. We advise planting in the fall or early winter at the latest. This also means a shorter season in which to irrigate, and little bloom can be expected from late planting.

Watering or irrigating is a matter of judgment. They do not require more than other plants. and a healthy looking plant that doesn't bloom may require more sunlight, or have been forced with too much water or fertilizer. Some, but not all, of these Bearded Irises are evergreen; some may throw up flower stems from the bare ground. To try to force such varieties into leaf-growth in undesirable.

Drainage is important and in our heavy soil we use the trench system; planting on ridges about three feet apart, irrigating between. It is much better to let the water soak in than to sprinkle. Where good foliage is not required, they can be allowed to rest during the summer commencing to water in late August or September until the rains

begin. Again in the flowering season and a few weeks thereafter, it may also be necessary to irrigate.

For fertilizer, bone meal is the safest tho we have used thoroughly decayed and pulverized cow manure. Sometimes a sack filled with manure in the main irrigating ditch acts as a fertilizer. It is best to do this, not in the flowering season, but in the winter as the new growth starts. One correspondent dealing with a light soil uses droppings from the poultry house with success tho they do not come in contact with the rhizome. Mr. Mohr in the heavy soil near San Francisco merely gives good and frequent cultivation while another customer writes of her success both in a shallow, rocky river bottom soil and in red decomposed granite. The very sandy soil of Glendale seems to demand lots of water and fertilizer, while in the desert sand about Taft the beds are specially prepared with a rich mixture of pulverized straw, old cow manure, lime and leafmold. There also water is required.

The spurias do much better if given more fertilizer, humous and water than the Bearded and while the Japanese and kindred species appreciate more moisture and richness they will endure a short season of drought,—something that the sibericas will not permit. These last are perhaps the best for a shady position.

The Crested species, tectorum, and cristata require a cool, moist soil—not too heavy. The Junos and Spanish irises demand plenty of moisture during and just after the blooming season, but the bulbs must be allowed to ripen as with other bulbs. The English irises do not seem to succeed at all here in Southern California.

Our native species have proved difficult to handle, possibly because artificial watering does not seem to meet the requirement, partly because of the lack of humidity, but seedlings when once established prove easy. Some even bloom the first year, and we have had some fine clumps. Mr. Morris of Pasadena is most successful with these and in porous, rocky soil they make fine clumps at three years, even with little care.

There is still one other species we should mention, the mid-winter blooming unguicularis (stylosa). Planted in late summer or early fall, they thrive under the same conditions as the Bearded varieties, tho the narrower leaved varieties are slower to become established. About late July the foliage should be cut close to the ground, the refuse cleaned out, the watering begun. The new leaves soon appear, and bloom commences in September and reaches its climax in January, tho some flowers may still be found in March.

Iris Culture in Illinois

William A. Peterson, Chicago, Ill.

I shall briefly state my opinion as to cultural instructions.

1. Roots to plant.
   (a) Rhizomes from plants not over two to three years old.
   (b) Plant single tubers at least a foot apart.
2. Soil.
   (a) Medium rich, loose loam for propagating, rich soil for large blooms.
   (b) Well drained.
   (c) Plenty of sunshine.

(d) Water during blooming season and after transplanting particularly if it is done soon after flowering.

3. Labor.
   (a) Plant in July if not long out of the ground (we do most of our dividing then). For general shipping late August and September when the plants are more dormant and yet may become established before fall frost.
   (b) Set not more than 1½ inches deep with soil firmly tamped about roots.
   (c) Set 1 foot apart with rows 2½ feet apart for horse cultivation or closer if cultivating by hand.
   (d) Cultivate every three weeks, and hand hoe close about the plants.
   (e) Always cut the tops back to two to three inches and one third off the fine roots in transplanting.
   (f) Spring planting does not give as satisfactory bloom as fall, tho there is no permanent injury.

Irises in California

Carl Purdy, Ukiah, Cal.

The Bearded Irises and the closely allied Intermediate and Dwarf varieties are very easily grown on this coast. One sees them everywhere, along the coast where the winters are mild and the summers cool and foggy, in the mountain valleys, even in the hot interior valleys where there is no rain from May to October. The finest flowers I have seen were in the sticky black clay that we call "adobe" where they were well-drained and had their summer baking. The natural habits of the Iris are like those of many bulbous plants, they lie dormant during the summer and are quickly stimulated into root growth by the fall rains that, here, usually come in October. They are slow to make leaf growth and when they do there is a strong root system to support it. The winter cold is not sufficient to check it. In August transplanting, they make no growth unless watered, the rhizomes are apt to dry out and shrivel so that I plan to divide and reset in late September and water at once to start the new growth.

As a dealer I have two distinct points of view, first to produce really fine rhizomes to sell and second to have very fine bloom each year. Well cared for plants give the finest blooms the second year so that I divide my stock in two duplicate sets one of which is transplanted each fall. Dried Blood or a well-balanced commercial fertilizer I give the poorer soils and there is one treatment that few can carry out, and that, is to burn off the old leaves on the beds in late summer. This does away almost entirely with the leaf rot and the ashes serve as a fertilizer.

I once questioned the part that the old roots played in the subsistence of these Irises but I find that when cut off in the fall they do form new fibrous branches and help to sustain the plant. If this is true, dry shipment is a distinct disadvantage.

With the Oncocyclus Irises I have had little experience, tho Susiana grows admirably year after year in a loose gritty soil rich in leafmold and lime, and other species also, sent to me by Mr. Dykes, did well for years. Lime seems to be the one necessary element for their culture.

I have had the Japanese both in rich mucky soil along the stream and in the finest of moist potato land, they do well with an abundance

of moisture but I have never seen such a jungle of strong growth and incredible size of flowers as in the garden of Mr. P. E. Bowles at Oakland, Cal. It is on the top of a flat hill with very shallow gritty clay soil and after the slightly depressed beds have been well enriched with bone, manure is spread between the rows as the plants start into growth. The bed becomes a small pond thruout the growing season.

The sibericas and pseudacorus thrive well in similar soil and orientalis seems particularly happy in the running water, its rhizomes close to the surface. The Spanish and English bulbous Irises succeed in a well-worked, and drained, loose soil with plenty of moisture during the growing season and for a month thereafter with a good baking during the summer, similar treatment to that I give the tulips.

CALIFORNIA AND OTHER WESTERN AMERICAN IRISES

For many years these have been my study, I have collected them from the wild, grown them in the garden, I have an intimate knowledge of the soils and conditions under which they may be found, but when it comes to their cultivation I have a great deal still to learn, some entire lots have been a great success, another of the same species a miserable failure. When once established they are easily grown for an indefinite period, they are hardy also but in their susceptibility to moving there is a great difference in the species, and grouping them according to their habit of growth may prove helpful.

Group I. Iris longipetala and missouriensis have heavy, densely clustered rhizomes, not fleshy like the Bearded but much heavier than siberica. They grow in heavy soils, in spots that are either winter swamps or quite moist all winter but by mid-summer all the moisture in gone and they get a thoro baking.

Group II. Iris Douglasiana, Watsoniana,* Purdyi, and bracteata grow in moist open woods, in soils tending to clay and are at their best in clay soils quite moist in winter tho there is seldom rain from May till mid October.

Group III. Iris Hartwegii and some other forms of tenax have still more slender rhizomes, almost like strings but do not make dense masses. In the wild they are found in dry, open woods in a rather loose soil.

Group IV. Iris macrosiphon (chrysophilla, Howell), also has slender rhizomes which however, form dense masses. These too grow in open woods but like the others seem to thrive better in clearings.

Of these four groups the first is quite easily cultivated, and the little stringy rhizomes of tenax prove the most difficult. I beleive that the best method of handling them all is parallel to the handling of Dutch bulbs; move when dormant in late summer (or with soil in early spring), plant at once, and if the falls are too short to permit their becoming established pot and put in a frame or cool house. They suffer if their evergreen tops are frozen when there is no new set of roots to counterbalance evaporation.

While the climate of their native habitat varies greatly in both cold and moisture, the summers are always dry with seldom a shower between May and mid-November; indeed so lifeless do the fibrous roots become that one would question their retaining any life and yet with the first fall rains, fleshy white roots are thrown down in plenty and the flowers come from January to May. I am not sure but that they depend almost entirely upon these roots and moving after they are formed is quite a set back. If I remember correctly Max Leichtlin wrote me that he found the little seedlings easily handled while in full growth in the spring.

*A local form of Douglasiana.

Irises in Massachusetts

Grace Sturtevant.

The culture of irises has been so well handled in the previous papers that I find little to add from my experience, and yet in many details my practice is substantially different. My experience is largely with the Bearded varieties, and I shall write of them only, but I grow them in two distinct localities under two distinct types of culture. For field cultivation, I plant them 6-15 inches apart in single or double rows and allow 40 inches for horse cultivation as this permits (during a large part of the season) the use of a two row bean cultivator. The soil is heavy, what one would call excellent grass land, and the growth is almost too luxuriant as it tends to rot easily in wet spells and the plants are very subject to winter-killing, if not heavily mulched with straw (buck wheat is easily raised) the first year after planting. This last winter when the thermometer went down to 20 degrees below before the heavy snows, there was a serious loss in the plantings of the previous July, where clean of weeds, less loss with a natural mulch, and practically none where blocks had been allowed to become completely sodded owing to lack of labor. Except in a few cases where water actually stood, there seemed to be no consistent reason for winter-killing; in some cases the rhizomes were deeply planted, in others almost on the surface, both small and large divisions suffered indiscriminately and were heaved or not heaved by the frost, even the distinctions between the July and October plantings were not clear; in fact the only suggestion I gathered was that certain varieties proved almost a complete loss, others not. Caterina, for example, was almost a complete loss, also albicans and Amas and yet the greater number of the Caterina seedlings came through well and Oriflamme, an offspring of Amas looks very fair. Cold followed by rain in November may have caused the trouble.

In pleasing contrast to this is my garden experience. Here the soil is a light loam, on a pure gravel subsoil. The growth is less lush but the bloom is often finer, the plants almost invariably healthy and practically always hardy. To my mind, the great need is drainage, it is almost impossible to have too much in this climate, provided that your beds have good garden preparation. If the space is at a premium, the plants are put in 6 to 10 inches apart, the plants of a variety sometimes closer. The soil is very light loam enriched with bone meal and a mixture of leafmold, heavily limed. Some of the clumps have been 18 years in position, the crowded centers removed from time to time and fresh earth introduced. Under such conditions even the varieties with large rhizomes (there is a decided difference between those of a variegata and Isoline for example) are small but the bloom does not seem to be impaired. There are semi-shady spots also in the garden and though there is less growth and flowering in these, it is still effective and most convenient for a show garden as the season of bloom is lengthened.

Just a word as to the spacing in the beds of seedlings, which are 4½ to 5 feet wide with the thickly planted rows running across them. The seedlings are planted 4-15 inches apart. This makes separation of varieties from the same cross, and records simple, and also allows of easy hoeing from the grass or gravel paths. I shall take occasion elsewhere to write of my treatment of other species, but for pogoniris let me emphasize again the need of good drainage, plenty of sun and not too rich soil.

Adventures With American Irises

Louise Beebe Wilder.

With regard to American Irises we stand upon a threshold that promises delightful things. To pass through and know these distinctive flowers of our own soil must surely be the desire of every iris-lover once he is aware of the treasures that may be his at the price of a little trouble and initiative. Whether his quest be for new blood for creative work, whether for beauty for its own sake, or if he be actuated by the instincts of the collector, he may count upon reward, for there is beauty and grace and unusual color among them, and hardiness and fitness for garden usage, and plenty of scope for experiment and adventure.

At the present time, it must be said, knowledge of the native species is very slight. Even in gardens where irises are grown in great numbers and variety the Americans are conspicuously absent, and few persons are familiar with any save that which graces their immediate neighborhood. This, however, is not really surprising, since, until quite recently, only I. versicolor, the common Eastern species, and I. cristata, have been offered in our home catalogues,—and for many of us the nurserymen's lists constitute the limit of possibility. Today by dint of keen search and inquiry a few more may be discovered, but it is still far from easy to secure a representative collection. Nor is it any easier to glean authentic information concerning the conditions under which the various species grow naturally, their habits and requirements, so that collecting American Irises is a real adventure and one that should fire the zeal of every admirer of the beautiful family.

The first American Iris that grew in my garden was I. cristata, which, more shame, I did not know as a compatriot and imported from Holland. With it came a few roots of I. lacustris, the sister species, that grows along the shores of Lake Huron, while the other is found decorating the hillsides and stream-margins of many of the Southern states. Both of these little Irises are charming. They grow only a few inches tall, but the blossoms are large and conspicuous, clear crystaline-lilac,—lacustris a tone or two darker than cristata,—with crest and throat of bright yellow. There is a white form that has not yet come within my eager grasp, but one may imagine its frosted beauty. I have found I. cristata happy in almost any position offered it, and few plants make a firmer or prettier edging to bind about the beds and borders. It is also well adapted for level stretches in the rock garden where a gay effect may be created by planting Iceland Poppies in its neighborhood.

Another small Southern species, I. verna, I have not, so far been so fortunate as to please, for it continues to appear frail and unsettled though treated with great consideration. I have not, however, been able to learn under just what conditions this small creature grows at home, so it is probably not getting what it requires. I suspect it of being more than half mountaineer, a dweller in shaded hills where the soil is free and rich in leaf-soil, and though I have tried to reproduce these conditions there has so far been little response. This Iris is sometimes confused with I. cristata, though the two are in reality quite distinct, I. verna having erect standards in marked contrast to the spreading wings of I. cristata, and certain well defined differences of foliage. The flowers are lavender with a rich golden line along the fall, and are fragrant.

Three others of our Southern species Mr. Dykes gathers under the head of the Hexagona group. These are I. hexagona, I. foliosa and I.

fulva. The first, though I have twice been so fortunate as to be in possession of a root of it, has not weathered its first winter. This may not, however, at all conclusively argue a lack of hardiness in the plant, but merely some unsuitability of soil or situation. I. hexagona grows from Kentucky to Florida and Texas and it is probable that the northernmost forms would be quite hardy given other conditions to their mind. Mr. Dykes says, "I. hexagona is worth some trouble, for it is a magnificent Iris with broad foliage and stems over three feet high."

The Iris once classified as I. hexagona Lamancei is now known as I. foliosa, but the two are quite obviously closely related. I. foliosa is, however, of great hardiness for it withstood the rigors of the past winter with no apparent discomfort. Its position here is in low ground where the soil is black and heavy and it seems well suited. The flowers are soft blue-lilac, the standards erect and the falls spreading with an orange-colored ridge along the shaft. The curiously flexuous stem does not top the rather broad reflexing leaves. It is much dwarfer than I. hexagona.

I. fulva has long been one of my favorite Irises. The copper hue of its blossoms makes it distinct among its kind,—a beautiful and most interesting plant. For years it grew here in its low bed of dark meadow-soil, to all appearances as happy as in its native swamps in the Mississippi Valley around New Orleans. But last summer, because of the crowded condition of its neighborhood, I moved my fine clump to another situation, and this spring finds it in a weakened and debilitated condition, due, I suppose to the strain of the extreme winter upon its Southern constitution before it had become fairly established.

I. tripetala, belonging to the south-eastern states, I know only as a thrifty little plant that came through last winter unharmed. Mr. Morrison, through whose kindness it came to me, says it blooms very late, and is remarkable from the fact that "the standards are reduced to a mere trace." This is allied to I. setosa, a species widely distributed throughout Asia and with representatives in Labrador, Alaska and Maine. Several years ago I grew from seeds what purported to be the Labrador variety. It is a delightful acquisition, dwarf, with erect standards and spreading falls, and the bluest in effect of any iris that I know.

Iris prismatica may be found, but not with great frequency, growing in damp meadows and along streamsides from Maine to the Carolinas and Georgia. It is a slender rather weak little species, with narrow foliage and a wiry stem, usually forked, carrying small blue-lavender blossoms veined or marked with white. I have found it not very dependable, but think in moist grassy meadows it would be more steadfast and in its season would create very pretty patches of soft color. I. versicolor is, of course perfectly hardy, perfectly lovely and perfectly rapacious,—no plant for restricted garden areas, but one of the most delightful for naturalizing. Throughout the East, from Hudson Bay to Texas, this Iris spreads its shadow-like breadths of color during May and June over moist meadows and along streams, and it is certainly one of the most beautiful and effective wild flowers that we have.

Of the Western species I can only say that all sorts of gay adventure lies in their direction, and that I have set out with a frame full of seeds, high hopes, a few theories and no exact information to meet it. What we hear of the Californian species sounds alluring indeed, but whether we can induce them to anything like robust life in the East remains to be seen. It seems certain, however, from the few experiments that have been tried with these Irises in the East, that to start from seed is the surest method of prevailing upon them to accept our conditions.

Of the two Western Irises that have come within my experience the tales to be told differ widely, though the two are closely related. These

are I. longipetala, found only near the sea-coast of California, and I. Missouriensis, which is more widely distributed, growing in the Rocky Mountains and west to California. With I. longipetala my garden has long been on the friendliest terms. It is a most lovely species, with firm, slender foliage and exquisitely modeled spreading blossoms lightly poised above the leaves. It flowers with me towards the end of May and has been perfectly happy in ordinary soil in a sunny sheltered position, asking no special favors and showing no crotchets or whimseys. Mr. Dykes says that I. missouriensis differs from this species only "in being more slender in all its parts, in holding its flowers well above the leaves and in losing its leaves entirely in autumn." The chief difference I have found to be in its behavior. While I. longipetala has grown and flowered happily in the garden for seven years, I. missouriensis has sulked for the same period. During that time it has been given the opportunity to sample about every sort of soil and situation, but with the uniform result of the breath barely remaining in its body. This spring, however, it has sent up, from a mass of pressing forget-me-nots and primroses in a dampish bed where it was tucked last fall with a feeling of complete indifference as to what became of it, a really hearty and efficient appearing sheaf of leaves, and my interest in it has revived. Perhaps it may even be moved to reward my seven years of faithful service by blossoming.

I. montana, once known as I. longipetala montana, a relative of the two Westerners just described, is still incased in its brown jacket in the seed frame, but I am hoping that time will show it to be as kindly disposed towards Eastern hospitality as is its beautiful cousin.

Various Notes on Culture

When we approach the less widely known species it becomes necessary to quote largely from "The Genus Iris" by W. R. Dykes and many lesser sources. Often also, the natural habitat of a species will prove our only guide. I am much indebted to Mr. Dykes, one of our fellow members, for much of the following information even when he is not directly quoted.

Apogons or Beardless Irises.

This is by far the largest group botanically, and in its requirements of moisture is diametrically opposite to the Bearded Irises of our gardens. Here belong the Japanese, sibericas, spurias, unguicularis and practically all of our native species. For the most part they like a moist valley soil, rich in humus where they are apt to have a summer rest and baking even though it is a winter bog. A dry garden does not suit. The plants can make use of much moisture in the flowering season but standing water often proves fatal in a cold winter. They are at home by the water's edge but are as decorative and satisfying with phlox and peonies in a rich garden. I will now pass to comments on the sub-divisions of this group.

Of the sibericas, which include the newer species from Western China, Delayayi, Wilsoni, Forrestii, Bulleyana, and chrysographes and our small prismatica, all appreciate moisture, but only Delavayi and Clarkei are at all exacting. All may be easily raised from seed and tho spring planting may prove advantageous for trade purposes, after flowering transplanting is good in the garden.

Almost equally well-known are varieties of the spuria group, ochroleuca, Monneiri, aurea, all giant growers and the fragrant small graminea

which last will tolerate a considerable amount of shade. Their flowers bridge the gap between the tall Bearded and the Japanese. These last we find in many a garden, but Mr. B. Y. Morrison's report of their treatment in Japan may prove suggestive.

"A famous collection in Kyoto was grown in large pots and given special care and attention, another planted more for landscape effect was planted on the shores of artificial ponds, on land so graded that when desired the level of the pond could be raised so that the entire area was flooded to a depth of a few inches. The side of this area next the pond itself is usually marked off by a barrier of bamboo woven between stakes as for a basket and so low that it barely shows above the water level, so open that it does not hinder the water from reaching the roots of the irises and yet strong enough to prevent the soil from washing away from the plants.

In commercial establishments they are grown in fields which are divided into small plots by low dykes of earth. Through the fields runs a system of irrigation ditches or canals so that water may be turned into any of the plots. The ground in the ones I saw was a heavy clay; they are heavily fertilized with manure in the autumn and toward spring, as growth starts water is turned in so that the strength of the fertilizer quickly reaches the young roots. The fields are then drained and when dry enough to work, the remainder of the manure is forked into the soil.

I do not know at what time the roots are divided in the Japanese nurseries but in my own experience April has been rather more satisfactory than any other month."

The Californian group is perhaps of next interest, not because many of us are successful in its culture but because of its difficulties and the charm of the flowers. Mr. Purdy has well covered the subject and yet I find Mr. Morrison's experience in Washington, D. C. of interest.

"I have had plants of I. Douglasiana, tenax, and longipetala for several years. Douglasiana (Herbert) is an evergreen species with tough wiry leaves which are completely destroyed if the plants are not heavily mulched, even the tips are often killed, but the growths of the spring are so rapid that new foliage is soon provided. Many color forms occur with me but the most vigorous one is a pale ivory which is also larger flowered than the blue forms. Transplanting must be done just as the plants come into strong growth in the spring, and even then the results are not very satisfactory.

Iris tenax is a little easier to handle when once established because it does not have evergreen foliage, but like all others it resents transplanting, longipetala (Herbert) however presents no difficulties in culture and throws its slender stalks of most delicately veined, lavender-blue flowers each spring.

Seedlings of these and macrosiphon and bracteata as well (save that in the last, germination has been scanty) are easily raised. I have obtained seed in the spring. This will lie dormant all summer with a few germinations in the fall. I keep the potted seeds in a cold frame during the winter. (They have germinated well out of doors in Massachusetts. Ed.) Those plants which germinate in the fall often damp off during the winter, but the following spring there is good germination. Seedlings should be grown to four or five leaves before pricking out, then if they cannot be planted in pemanent quarters they should be put in thumb pots. Use sandy soil rich in humus and free from lime."

Mr. A. J. Morris of Pasadena has had fine success with hybrid seedlings and for the most of us this seems to be the safest plan, the great beauty and delicacy of the flowers is worth every effort.

There are still other members of the Apogon group, versicolor which we find in swampy meadows throughout the eastern states, missouriensis

and montana of the Rocky Mountain region from Idaho to Arizona, setosa found only in Northern Maine but extending northward and westward across the continent to Alaska and northern Asia. This seems to present no difficulties of cultivation and the dwarf forms makes a desirable garden plant it is so floriferous.* The near akin tripetala though often found in swampy meadows where a sandy sub-soil was overlaid with black muck, grows and multiplies in ordinary heavy clay or even garden soil.** Like foliosa and hexagona it is a native of our Southeastern states. Foliosa does not flower freely except under fairly moist conditions though in England a rather dry and sunny position is recommended.* Fulva with its small livid blooms is from the same district, all are naturally semiaquatic and one would expect fairly tender, but they have stood 15 below zero in my garden and thanks to a covering of snow the last was not so badly burned as it sometimes is in the neighborhood of Washington. Hexagona is a lovely thing and Mr. E. B. Williamson's hybrid Dorothea K. Williamson, a cross with foliosa, is wonderfully rich. In Mr. Morrison's heavy clay it has flourished but in my lighter soil the plant is less happy.

Ensata from Asia is more resistant of drought than any other iris,* but its slender rhizomes do not stand shipment well and seedlings take a number of years to bloom: once established, however, it takes hold well and unlike other Apogons has no objection to lime in the soil.*

Unguicularis (stylosa) from the shores of the Mediterranean is not reliably hardy though Mrs. Azro Fellows in Ohio carried through a plant in a warm corner this last hard winter. In California where it naturally secures the necessary summer baking it is doing finely and its many color forms prove a real addition to the garden. Rich feeding, moisture at flowering time and **absolutely none** for a while afterwards are recommended; April and November, the seasons when roots growth is about to begin, seem the best times for transplanting.* It is also most effective for pot culture and easily handled.

With verna which has the typical growth of a Bearded Iris but no beard, we leave the Apogon group. This is found in dry uplands from Virginia and Kentucky south to Alabama and Georgia. Mr. Dykes reports some difficulties of cultivation and recommends half shade and peaty soil, but I have plants perched on a south slope where the soil is part wood-earth but mostly gravel, and each year I am delighted with their vivid blue flowers. The foliage is evergreen, but unsightly for only a brief period.

Pardanthopsis.

Iris dichotoma forms a section by itself and is very reminescent of the Blackberry lily, Belemcanda. It blooms from late August until mid-September. With me it presents no difficulties of culture though in my light soil it does not grow over three feet high. The seed Mr. Morrison sent from China germinated well, the plants bloom very promptly, usually every leaf sheaf flowers and dies, the new ones not appearing until spring. His report of its native haunts adds to the interest. "The open park in which are located the Western tombs of the Manchu emperors is a great meadow with small wooded eminences on either side of the valley of a small torrential stream. The iris occurs chiefly in the stream valley but extends well up to the edge of the woods. It is not a marsh iris but makes a finer growth when the supply of water is adequate and on some of my three-year clumps in the garden I had stalks almost six feet high covered in late afternoon with myriads of the small flowers."

Evansias.

The Crested irises include our native cristata, the Japanese graci-

lipses, tectorum, and japonica and two rare species. None present any difficulties of culture, tho japonica is a winter bloomer and is best grown in a cool green house in northern climates. In Japan and China it occurs in the undergrowth of the open woods forming dense mats and where spring frosts are not serious should prove delightful with its showy tho evanescent blooms. **

I. cristata is a native of the mid-eastern states, Wisconsin and south, forming broad patches in light shade in a well-drained soil rich in humus. I have good clumps in almost pure gravel, in heavy wet loam, and light loam, tho it does best in the last. The plant may be divided at any season tho spring seems the best time for shipment. I. lacustris is a slightly local form and there is at least a white color variation which should be in the trade as few irises are more lovely for edgings or the rock garden.

I. gracilipes reminds one of a miniature Japanese, a delightful thing. With me it keeps company with cristata on a southern, lightly shaded slope tho its habitat suggests more shade. I have had little experience in transplanting, have done it at many seasons, but suspect that spring is the best time.

Tectorum in deep lavender and particularly in white is worth growing; it is hardy and easily grown, the only drawback in this climate its evergreen foliage which is injured by the cold. It seeds freely, germinates well and makes so lush a growth that, for flowering, frequent transplanting is necessary.

Oncocyclus, Regelia, and their hybrids.

With the Oncocyclus, Regelia and even the Reglio-cyclus hybrids come a race that present many difficulties of cultivation. They are all characterized by stoloniferous growths and tho the hybrids are quite likely to succeed none are sure growers. The general requirements are so similar that I shall make little attempt to distinguish between the treatment of different species.

Mr. Dykes recommends a dry, sheltered site with some provision of frames for keeping off rain in the late summer and autumn. The red loam of a limestone formation seems the only successful soil but a well-limed (3½ lbs. to the square yard) fairly heavy loam may take its place. Many recommend lifting the roots immediately after flowering, (the roots unbroken) drying thoroly and replanting in October.

Dr. David Griffiths of the Department of Agriculture who is in charge of the planting of Reglio-cyclus varieties at Chico, California, recently told me that they were having fine success with several inches of manure used as a summer mulch.

I have purchased them from Holland in the fall, planted them out and had bloom the following year on Korolkowi, Susiana, and many of the hybrids which are equally lovely, but each succeeding year there has been less, and tho plants of iberica, paradoxa, Mariae and others of the true Oncocycli have existed for some years there has been no bloom. This was in a well-drained, well-limed soil that was almost parched in summer but with no other special protection. Tho Korolkowi in its varieties has proved the best grower with me, Susiana the Mourning Iris is best known,—one is continually hearing reports of its success even here in the East without special care. In California which in some sections approximates the climate of Asia Minor, they are more likely to do well and should prove a great addition to the garden.

The hybrids between certain of these and Pogoniris, of which Shushan, Parvar, and Paracina are perhaps the best known, are of far easier culture. With one grower they will thrive, with another succumb, in my light soil they are very poor and I suspect that they would appreciate a

fairly heavy loam with plenty of humus to hold the moisture. There is much to be done in developing hybrids that carry the wonderful venation of the species combined with ease of culture. Both Mr. Williamson and Mr. Mohr have raised a number, and the Susiana hybrids such as Cherokee Maid are far larger, finer and better growers than the small flowered Korolkowi seedlings.

I will pass over the Pseudo-regelias, none of which are in cultivation. They are natives of the Himalayas and Western China and demand the same treatment as the Oncocyclus.

Bearded or Pogoniris.

The dwarfs, flavissima (arenaria), Bloudowii, and Manshurica form a connecting link with the Regelias, the first should be planted "in a layer of very sandy soil about two inches deep overlying well-enriched old leaf soil in a sunny well-drained position." * Personally I have not found it easy to grow tho both Mrs. L. B. Wilder and Mrs. E. P. McKinney report good clumps. The equally dwarf true pumilas have very short feeding roots, are too small to stand crowding and need frequent replanting in new soil to thrive. There seems to be no special concern with the other dwarfs, particularly as all the hybrid garden forms are of the easiest culture but with the taller verieties there are a few points to be kept in mind. The greater part of them are derived from European species (?) aphylla, variegata, albicans, germanica, pallida, and Cengialti; of these albicans may winterkill, roughly the ones that completely lose their leaves in the winter are most likely to prove hardy. * This guide is particularly valuable in regard to the newest hybrids which may carry the blood of the Asia Minor group, Trojana, cypriana, Junonia, and mesapotamica, some of which are susceptible to cold. I do not find it altogether applicable, however, as Junonia, with pallida like growths winterkilled more than the almost evergreen cypriana which has endured 20° below zero with little protection. Hybrids of variegata seem invariably hardy, pallidas a little less sure, cypriana and Caterina forms variable, trojanas equally variable and mesopotamica (Ricardi) seedlings the most doubtful tho Carthusian has wintered finely.

Transplanting. Spring or rather before blooming is the only season not recommended tho in a report in the Journal of the Royal Horticultural Society for December 1915 March planting gave the greatest number of stalks the FOLLOWING year, with practically none the June after planting. Even moving from one part of the garden to another will not give representative blooms the same season. All irises have a shorter or longer resting period after flowering but IF there is a long dry spell at that time and no irrigation it is far better to transplant just before the rains. This is apparently true of Georgia, California, possibly Tennessee and other states.

Mr. Willis E. Fryer of Mantorville, Minn. transplants from late September well into November with good results, this gives the plant a chance to form its flower buds before it is moved and with winter protection I have had very fair results.

Seed. Few garden hybrids set any amount of seed without hand fertilization, many are completely sterile. In most cases the seed should be planted as son as ripe but practice varies both in the time of planting, transplanting, and care. The subject is worthy of a special report at a later date.

Care. The removal of unsightly foliage at any time is desirable but complete removal of all foliage is hardly to be recommended except for

shipping and it is far better to pull off the drying leaves than to cut them, and leave the base untouched. This not only keeps them looking well but is a sanitary precaution as well. In fact Mr. E. B. Williamson burns over his beds in early spring and with good success.

Most irises seem perfectly hardy when healthy, if they are not completely heaved out of the ground by frost, and it is to prevent this that a light covering is often desirable. It is natural for the rhizomes to lie bare on the surface, covering them in summer may prove injurious.

Division of Roots. Altho it is often necessary to actually cut old clumps of the Beardless Irises the less matted rhizomes of the Bearded varieties are easily broken apart, in old clumps the whole center may have actually decayed so that there is only a ring of growth. In the garden I may cut out this center and put in fresh earth, I may even cut some of the rhizomes in a crowded clump but if the plant is taken up completely I break rather than cut the rhizomes. Personally, I find no advantage from planting an unbroken clump, tho if I wish the effect of a clump immediately, I may plant a number of single rhizomes, each with a strong sheaf of leaves, and perhaps two or more leaf buds showing, close to one another. This gives the desired effect whereas if you purchase a clump it may well be broken in packing and even when I transplant it in the garden in a nice spadeful of earth it seems slower to become established. The size of the rhizomes of the different varieties vary greatly, it seems often as tho the naturally small rhizomes were more sure of bloom than the large growing varieties, but under proper conditions I expect at least 50% of this years leaf sheaves to form flower buds for another season. Inasmuch as many seedlings of this year's germination will bloom next spring, even more might be expected of an old plant.

Practice varies greatly as to shipping; sphagnum moss, dry peat, excelsior, or paper may be used, the first for moisture, the others for dry packing. If there is any danger of heating or molding while in transit, dry rhizomes come thru in the best condition and it is for this reason also that I like the roots done up in small packages so that if any rot is present, the loss is confined to a few roots. The dry rhizomes are slower to start into growth, they may decay if over-watered before the roots start, but there is slight danger of rot before arrival. The presence of long leaves and fibrous roots retains moisture and is therefore not commonly desirable, but to attempt general recommendations for shipments made at different stages of growth and various distances is rather unwise.

Pot Culture. Here again our information is slight. Japonica is commonly grown in a cool house, the Dutch, English, and Spanish irises are often forced for early spring sale, reticulata and its ilk are charming in pots, Susiana has been potted up and this treatment is the only one that allows many of us to see the winter-blooming unguicularis, alata, or others. I have bloomed arenaria and pumila hybrids in a sunny window with no special care and tho I have had little experience in this line I should suspect that any iris could be so grown tho probably the time of bloom would not be greatly advanced. Irises form their buds before fall, probably in late summer and a plant dug and potted for the winter should, if well-grown, blossom as freely as if left in the garden. One would expect that the larger species would be the most difficult to handle, the smaller ones the easiest. Mr. Morrison has told me of an ivory pseudacorus which under pot culture was less than a foot high, but in the open immediately reverted to its pristine stature. To those with suitable facilities there is an opportunity both for experiments and an attractive display at a season when even a few irises would receive careful study and appreciation.

Bulbous Irises.

As we pass on to the Bulbous Irises we find little American information and I shall quote largely from Bulbous Irises by Prof. Michael Foster, published by the Royal Horticultural Society in 1892.

The Xiphium section which includes the Spanish, English, and Dutch forms as well as the species juncea, Boisseri, filifolia, and tingitana, which last forces particularly well, is confined almost entirely to Spain and Northwestern Africa. "The first thing to note is the contrast between the needs of the Spanish and the English Iris, both profit by good exposure to sunshine, but while the first delights in a dry spot, the latter insists on an adequate supply of moisture at its roots in summer. Hence, as a rule, where the one thrives the other fails." The Spanish begin growth in late autumn, the English in spring and the large growth of Tingitana makes it unlikely to succeed when subjected to spring frosts. I have bloomed it for two successive years in a well-drained place in the garden, it has long since passed on. The Dutch Irises are of recent development, due to the progressive spirit of C. G. van Tubergen of Haarlem, Holland. They are lovely things blooming about ten days before the Spanish, almost intermediate in size between these and the English and with a liking for a dry rather than a wet soil.

Mr. C. Zeestraten of Bemus Point, N. Y. advises that the Spanish Iris should be planted in October-November so that they will not show up before the winter while the English should be put in in August and September. For both he recommends rich but not freshly fertilized soil and a slight winter covering. The English need a little extra and both can be left untransplanted for two to three years to advantage.

Dr. David Griffiths told me that at the Experiment Station at Chico, California they were doing finely, but that at Bellingham, Md., the English were not satisfactory.

As there is a very small stock of these popular cut-flowers in this country any information from members is much desired.

The reticulata section, bulbs with netted coats, includes a number of species that vary little except in color. You will often find clumps well-established in old gardens blooming with the crocuses. Lime and good drainage is advised and if you wish to grow them in pots they should be put in a cold frame in midsummer, protected from excessive autumn rains and brought into the cool house just as the buds expand. There are no special soil requirements and tho the very early histrio and histroides have not stood the winter with me reticulata and its red-purple variety Krelagei are thriving in a mixture of leaf-mold and gravel.

This completes the review and with a brief lot of odds and ends from members in various sections I will close.

Miss Mary C. Bissell recently sent in some news as to Iris growing in Florida. The Bearded varieties do not succeed and the Japanese die out in a few years even in mucky soil tho they have been grown at the University at Gainesville. The natives fulva, foliosa, and hexagona offer promise of hybridization and one would expect that the beautiful hybrid Dorothea K. Williamson would lead the way to further developments for Florida.

Mr. H. W. Groschnor of Napoleon, Ohio recommends that in transplanting in July or August that all fibrous roots should be cut and the outer leaves also should be cut close. Unsightly leaves may be removed at any time to advantage.

The Propagation of Rare Irises from W. J. Engle, Dayton, Ohio.

"The stock is dug late in the season just before the last freeze up. With a sharp small bladed knife the roots are divided so that there is one bud and a part of the rhizome and some roots with each one. The blooming bud should have a side shoot with it. These are potted in 3 and 3½ inch pots and wintered in a cool greenhouse and kept somewhat on the dry side until well-established and it is very seldom that we lose one of these plants. By the first of May this makes excellent stock for lining out or selling. Transplanting does not check their growth in the least."

From one Lord of June received from Wallace in mid-winter we had five strong plants the following May. From one Shekinah from Miss Sturtevant in August we had six in the spring, but on the other hand from one Dominion which arived late in December although a fine root we did not risk making more than two."

From the Bulletin on Irises for Southwestern Gardens, by Prof. J. J. Thornber, Tucson, Arizona.

"They should have protection against strong winds, at least during the flowering season and they may have full exposure to the sun tho under our conditions they tolerate considerable shade and hence grow well among other plants or against buildings. Transplanting may be done after flowering or in August to October but the plants should not be given much moisture until growth starts as they may rot."

From Mrs. Clara Hunt, Napa County, California.

"Iris Susiana: separated June 3, 1919 to one eye and planted 12 inches apart in a bed where nothing had been previously grown. Soil well-limed and cultivated. Watered sparingly through June and July, then withheld until October rains. It proved a dry winter for California but the irises were up by January 1st, were protected on cold nights, cultivated and given a weak infusion of chicken manure. The bloom was fine March 28th. I have grown this for many years without special care, the climate seems most favorable under natural conditions. Amateurs should be advised that this iris dies down after blooming and that beds should be well staked and water withheld after new roots are formed."

*"The Genus of Iris," by W. R. Dykes.
**B. Y. Morrison.

In closing I wish to thank the many members who have so generously given of their experience.

"All faults I make, when I shall come to know them
I do repent."—Winter's Tale, III.2.

R. S. Sturtevant.

CHARTER MEMBERS OF THE AMERICAN IRIS SOCIETY
June 1, 1920

Abrams, Mrs. E. W., 2437 Locust Ave., Louisville, Ky.
Ackley, Mrs. H. C., 236 N. Kenwood Ave., Glendale, California.
Aldrich, Mrs. John, R. No. 6, Box 355, Independence, Mo.
Alexander, Mr. John K., East Bridgewater Mass.
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